

**PRESSURE REGULATOR AND METHOD OF USE**

**FIELD OF THE INVENTION**

- 5           **[1]**     The invention relates to a device and method for inflating or deflating an inflatable object, such as a tire.

**BACKGROUND OF THE INVENTION**

- 10           **[2]**     Vehicle tire pressure plays a very important part in tire service life and in vehicle fuel economy. Properly inflated tires may save fuel, reduce pollution, provide a comfortable and safe ride, and last many years of normal driving. Improperly inflated tires may wear out quickly, waste fuel, and can cause collisions. Either over-inflated or under-inflated tires may significantly reduce tire service life. Under-inflated tires often result in reduced vehicle fuel economy.

- 15           **[3]**     Most tire inflation methods generally are tedious and involve trial and error. For example, one commonly-used method to achieve a proper tire pressure charge is to utilize an air pressure source and a tire pressure measurement device, charging the tire for a while and then making a measurement, and then charging and making measurement. This procedure is repeated many times to achieve the desired tire pressure. Another tire inflation method, albeit less common, is to regulate down the supply air pressure source to the desired pressure and then to charge the tire with the regulated pressure. Since there is no significant pressure head for the pressure charge, this approach takes much longer time to achieve a desired tire pressure than that of the first method. Due to the tedious nature, neither approach for pressure inflation is very convenient and user-friendly. As a result, vehicle drivers perform a tire pressure check much less often than necessary, and tire inflation becomes an often ignored item of auto maintenance.

- 20           **[4]**     For the foregoing reasons, there exists an unfulfilled need for a user-friendly device and method for inflating or deflating an inflatable object, such as a tire. Preferably, such a device and method could automatically inflate or deflate a tire to a desired pressure setting without going through a trial and error process.
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